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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,391	03/26/2001	Minoru Fujimori	2001-0206A	7242

513 7590 04/10/2002

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EXAMINER
WHITEMAN, BRIAN A

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 04/10/2002 14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/816,391	Applicant(s) FUJIMORI ET AL.	
	Examiner Brian Whiteman	Art Unit 1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *6,7,23 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-22 and 24-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *26 March 2001* is: a)☐ approved b)☒ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *11* .

DETAILED ACTION

Non-Final Rejection

Claims 1-5, 8-22, and 24-26 are pending examination.

Priority

Receipt is acknowledged of paper (Japan 2000-2876888 filed on 9/21/2000) submitted under 35 U.S.C. 119(a)-(d), which paper has been placed of record in the file.

Applicant's election of Group I (claims 1-22 and 24-27) and species a) in claim 4 in Paper No. 13 filed on 2/6/02 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

4.8.02

Claim 23 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention and species b) in claim 4 and claims 6-7 and 27 as being drawn to a non-elected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 13.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of the term "said" on line 9, page 71. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities:

On page 32, line 10 of the as-filed specification, there are spaces between the words "spectomycin" "resistance" and "The". It is not apparent since the application was translated from a Japanese application, if the specification is missing words in between each of these words listed above. Clarification is requested

Claim Objections

Claims 12-21, 24, and 25 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim 26 is objected to because of the following informalities: grammatical error in the claim, page 69, line 25, phrase should read "only in cancer cells". Appropriate correction is required.

Claim 22 is objected to because of the following informalities: grammatical error in the claim, suggest amending the claim to read "A genetically modified bacterium, wherein the bacterium is a *Bifidobacterium longum* 105-A/pBLES100-S-eCD E having the deposit accession number FERM BP-7274". Appropriate correction is required.

Claim 4 is objected to because of the following informalities: reads on a non-elected species.

Drawings

This application has been filed with informal drawings and a PTO 948 was sent out with paper no. 12. Formal drawings with corrections as suggested on the PTO 498 will be required with the response to this office action or the response will be considered non-responsive.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 8-11, and 26 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for 1) A method for specifically delivering to tumor tissues under anaerobic conditions a genetically modified bacterium, wherein the genetically modified bacterium is a *Bifidobacterium longum*, which comprises a DNA sequence coding for a protein; 2) The method of 1, wherein the DNA sequence codes for a protein having anti-tumor activity; 3) The method of 1, wherein the genetically modified bacterium comprises an expression vector comprising a DNA sequence coding for a protein, 4) The method of 3, wherein the expression vector has a promoter and a terminator that specifically function in a *Bifidobacterium longum*; 5) The method of 4, wherein the promoter is a nucleotide sequence consisting of 1 to 192 of SEQ ID NO: 1 and the terminator is a nucleotide sequence consisting of 472 to 600 of SEQ ID NO: 1, and does not reasonably provide enablement for other claimed embodiments embraced by the breadth of the claims. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

> Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in In re Wands, 858 F.2d 731, 8USPQ2d 1400 (Fed. Cir. 1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

The field of the invention is using a bacterium from the genus *Bifidobacterium* as a gene delivery vector comprising a gene used in a method of delivering the gene delivery vector to tumor tissues under anaerobic conditions.

Furthermore, and with respect to claims directed to any vector useful for gene therapy and directed to expression in of a gene in a mammal; the state of the art in 1998, exemplified Anderson et al., *Nature*, Vol. 392, pp. 25-30, April 1998, displays major consideration for any gene transfer or any DNA therapy protocol involve issues that include:

1) The type of vector and amount of DNA constructs to be administered,

2) The route and time course of administration, the sites of administration, and successful uptake of the claimed DNA at the target site;

3) The trafficking of the genetic material within cellular organelles, the rate of degradation of the DNA, the level of mRNA produced, the stability of the mRNA product, the amount and stability of the protein produced, and

4) What amount of the expressed proteins considered to be therapeutically effective for a DNA therapy method (Anderson, *Nature*, Vol. 392, pp. 25-30, April 1998).

In addition, all of these issues differ dramatically based on the specific vector used, the route of administration, the animal being treated, therapeutically effective amount of the DNA, and the disease being treated.

Anderson teaches that gene therapy is a powerful new technology that still requires several years before it will make a noticeable impact on the treatment of disease, and that several

major deficiencies still exist including poor delivery systems, both viral and non-viral, and poor gene expression after genes are delivered (pp. 25-30).

Anderson further teaches that the reason for the low efficiency of gene transfer and expression in human patients is that we still lack the basis understanding of how vectors should be constructed what regulatory sequences are appropriated for which cell types (page 30, column 1, last paragraph). Furthermore, Verma, *Nature*, Vol. 389, pages 239-242, 1997, indicates that factors including the nature of the diseases and/or disorders, the nature of a DNA and/or target tissue, and a delivery system and/or amounts of the DNA complexes employed in the delivery system that would generate a therapeutic effect *in vivo* must be considered for any gene therapy method to be successful (page 238, columns 1 and 2).

In addition, the state of the art for *Bifidobacterium* as exemplified by Yazawa et al. (Breast Cancer Research and Treatment, Vol. 66, pp. 165-170, 2001) teaches that:

> *Bifidobacterium* is non-pathogenic bacteria found in the intestine of human and some other mammalian animals. These organisms are believed to have health-promoting properties for their host, including increase of the immune response, inhibition of carcinogenesis, and protection of the host against viral infections. However, despite increasing attention to this bacterium in many fields, little is known about its genetic property (page 165).

Furthermore, the state of the art for transforming bacterium from the genus *Bifidobacterium* is highly unpredictable as exemplified by Argnani et al. (IDS, Microbiology, Vol. 142, pp. 109-114). Argnani teaches:

> Although electroporation technique has proven to be widely applicable to genetically transform bacterial strains, all Bifidobacterium so far examined have proved refractory to efficient and reproducible transformation (page 109).
>
> Yazawa, whom teaches that, further supports this:
>
> To be able to exploit the potential of these organisms for cancer gene therapy, detailed knowledge is required about such basic biological phenomena as cellular metabolism, gene expression, protein secretion, and genetics. Yazawa further states that, studies on Bifidobacterium at the molecular level are severely limited in the absence of an efficient transformation. Recently, Matsumura and colleagues developed a system for convenient and reproducible genetic transformation of B. longum (page 169).

The as-filed specification provides several working examples displaying the transformation of *Bifidobacterium longum* with a gene and the deliver of the genetically modified bacterium to tumor-bearing mice (pages 46-61). The delivery displayed that the bacterium specifically targeted the tumors (page 48). In addition, one example displays the production of a genetically modified bacterium comprising a cytosine deaminase (CD) gene and an example introducing the bacterium, which was specifically expressed only in tumor tissues under anaerobic conditions in tumor-bearing mice (pages 55-61).

In view of the as-filed specification and the state of the art for using bacteria as a gene delivery vector, the claimed invention is only enabled for producing and using the *Bifidobacterium longum* comprising a gene for use in specifically delivering to tumor tissues under anaerobic conditions in a mammal because the as-filed specification and the state of the art do not provide sufficient guidance for one skilled in the art to reasonably extrapolate from using

Bifidobacterium longum to using the genus *Bifidobacterium* without an undue amount of experimentation. The state of the art as taught by Argnani and Yazawa display that studies on Bifidobacterium at the molecular level are severely limited in the absence of an efficient transformation. Therefore, the state of the art is considered unpredictable and the as-filed specification does not provide sufficient guidance for one skilled in the art to make and/or use a representative number of bacterium from the genus *Bifidobacterium* as gene delivery vectors.

As a result, it is not apparent how one skilled in the art determines, without undue experimentation, which of the claimed bacterium from the genus *Bifidobacterium* other than the *Bifidobacterium longum* can be genetically modified and used as a gene delivery vector, how is it apparent as to how one skilled in the art, without any undue experimentation, practices any nucleic acid delivery method as contemplated by the claims, particularly given the unpredictability of nucleic acid therapy as a whole and/or the doubts expressed in the art of record.

In conclusion, the as-filed specification and claims coupled with the state of the art at the time the invention was made only provide sufficient guidance and/or evidence to reasonably enable the for 1-5 listed above. Given that gene therapy wherein any carrier is employed to correct a disease or a medical condition in any mammal was unpredictable at the time the invention was made, and given the lack of sufficient guidance as to a gene therapy effect produced by any gene delivery vector cited in the claims, one skilled in the art would have to engage in a large quantity of experimentation in order to practice the claimed invention based on the applicant's disclosure and the unpredictability of gene therapy.

Furthermore, claim 22 is rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it most nearly connected, to make and/or use the invention.

The specification lacks complete deposit information for the deposit of the genetically modified *Bifidobacterium longum* 105-A/pBLE100-S-eCD. While the specification provides enough information for one of skill in the art to produce the genetically modified bacterium with same or similar properties as the *Bifidobacterium longum* 105-A/pBLE100-S-eCD, reproduction of the identical genetically modified bacterium is an unpredictable event.

It does not appear that that *Bifidobacterium longum* 105-A/pBLE100-S-eCD is both known and readily available or can be reproducibly made or isolated from nature without undue experimentation, and because claim 22 specifically requires *Bifidobacterium longum* 105-A/pBLE100-S-eCD, a suitable deposit of *Bifidobacterium longum* 105-A/pBLE100-S-eCD on page 59 of the specification is noted but is considered insufficient assurance that all of the conditions of 37 CFR 1.801-1.809 have been met. If a deposit is made under the terms of the Budapest Treaty, then an affidavit or declaration by Applicants, or a statement by an attorney of record over his or her signature and registration number, stating that the instant invention will be irrevocably and without restriction released to the public upon the issuance of a patent, would satisfy the deposit requirement made herein. If a deposit has not been made under the Budapest Treaty, then in order to certify that the deposit

meets the criteria set forth in 37 CFR 1.801-1.809 and MPEP 2402-2411.05, Applicant may provide assurance of compliance by affidavit or declaration, or by a statement by an attorney of record over his or her signature and registration number showing that:

(a) during the pendency of the application, access to the invention will be afforded to the Commissioner upon request;

(b) all restriction upon availability to the public will be irrevocably removed upon granting of the patent;

(c) the deposit will be maintained in a public depository for a period of 30 years, or 5 years after the last request of the enforceable life of the patent, whichever is longer;

(d) a test of the viability of the biological material at the time of deposit (see CFR 1.807); and

(e) the deposit will be replaced if it should ever become inviable.

This requirement if necessary when a deposit is made under the provisions of the Budapest Treaty as the Treaty leaves these specific matters to the discretion of each member State. Amendment of the specification to recite the date of the deposit and the complete name and address of the depository is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3 are vague and indefinite for failing to define the metes and bounds of the claims. It is unclear what subject matter the claims define. For example, the term "system" in claims 1-3 is a relative term, which renders the claim indefinite. The term "system" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In addition, it is not apparent whether the phrase "delivering DNA specifically to tumor tissues under anaerobic conditions" is referring to the gene delivery vector or the DNA. Suggest combining claims 1-3 into one claim and re-writing the claim to read: A method for specifically delivering to tumor tissues under anaerobic conditions a genetically modified bacterium, wherein the genetically modified bacterium is a *Bifidobacterium longum*, which comprises a DNA sequence coding for a protein.

The phrase "has a higher activity than it parent strain" in claim 2 is a relative term, which renders the claim indefinite. The phrase "has a higher activity than its parent strain" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The disclosure does not define the metes and bounds of the phrase. Since a parent strain is considered a wild type strain and does not endogenously express an anti-tumor gene, it is not apparent how the wild type strain can express an anti-tumor protein. Therefore, it is not apparent to one skilled in the art how you can compare expression of an anti-tumor protein in a bacterium that does not express the anti-tumor protein with a genetically modified bacterium that expresses the anti-tumor protein. Clarification is requested.

Claims 10-11 and 22 are free of the prior art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8-9, and 26 are rejected under 35 U.S.C. 102(a) as being anticipated by Yazawa et al (IDS, Cancer Gene Therapy, Vol. 7, pp. 269-274). Yazawa teaches using a genetically engineered *Bifidobacterium longum* comprising an expression vector comprising a gene coding for spectomycin adenyltransferase in a method of delivering the bacterium to solid tumor tissues in a mouse (abstract and pages 269-271).

Claims 1-4, 8-9, and 26 are rejected under 35 U.S.C. 102(a) as being anticipated by Babincova et al. (Life and Medical Sciences Online, http://www.itrust.de/lamso/lpext.dll.Infobase0?title0003.htm?fn=docu 8/7/2000, pp. 1-4). Babincova teaches introducing a gene encoding a luciferase into the genome of *Bifidobacterium longum* and using the genetically modified bacteria comprising the luciferase gene in a method of destroying neoplastic cells (page 3-4). Babincova further teaches that *Bifidobacterium longum* is a nonpathogenic bacterium that selectively grows in hypoxic regions of tumors after systemic application (abstract).

Claim 26 is rejected under 35 U.S.C. 102(b) as being anticipated by Matsumura et al (IDS, Biosci. Biotech. Biochem., Vol. 61, pp.1211-1212, 1997). Matsumura teaches how to

genetically modify a bacterium from the genus Bifidobacterium comprising introducing a shuttle vector into *Bifidobacterium longum* (page 1211).

Note: Claim 26 is rejected under 102(b) because of the phrase "capable of expressing a gene coding for a protein having an anti-tumor activity". Therefore, any bacterium from the genus *Bifidobacterium* that could be used in a method for genetically modifying a Bifidobacterium comprising introducing a DNA coding for a protein having anti-tumor activity or a shuttle vector comprising DNA coding for a protein having anti-tumor activity into the *Bifidobacterium* is considered prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 8-9, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babincova et al. (Life and Medical Sciences Online, http://www.itrust.de/lamso/lpext.dll.Infobase0?title0003.htm?fn=docu 8/7/2000, pp. 1-4) taken with Tagliabue et al. (WO 96/11277). Babincova teaches introducing an anti-tumor gene into the genome of *Bifidobacterium longum* and using the genetically modified bacteria comprising the gene in a method of destroying neoplastic cells (page 3-4). Babincova further teaches that *Bifidobacterium longum* is a nonpathogenic bacterium that selectively grows in hypoxic regions of tumors after systemic application (abstract). However, Babincova does not teach introducing a DNA coding for an interleukin-2 protein into a *Bifidobacterium longum* and using the genetically modified bacterium in a method of delivering the DNA coding for the protein having an anti-tumor activity to tumor tissues under anaerobic conditions.

However, at the time the invention was made, Tagliabue teaches methods and compositions for delivery of therapeutic compounds to a mammal by administration of a recombinant bacterium to the animal, the bacterium encoding a therapeutic protein (abstract). Tagliabue further teaches that the bacterial microorganism can selected from several bacteria including *Bifidobacterium longum* (page 10, lines 5-10 and page 10, lines 12-20). In addition,

Tagliabue teaches that the gene can code for a protein selected from the interleukin protein family including IL-2 (page 13-14).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to modify the teaching of Babincova in further view of Tagliabue, namely to produce a genetically modified *Bifidobacterium longum* comprising a nucleic acid sequence encoding a interleukin-2 (IL-2) protein for use in a method of delivering the genetically modified bacterium to tumor tissues under anaerobic conditions. One of ordinary skill in the art would have been motivated to introduce the gene encoding IL-2 into *Bifidobacterium longum* because the bacterium is a nonpathogenic anaerobic bacterium, which can selectively localize to solid tumors in a mammal after systemic application and IL-2 was well known to one of ordinary skill in the art for its anti-tumor activity.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kay Pinkney whose telephone number is (703) 305-3553.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Whiteman whose telephone number is (703) 305-0775. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00 (Eastern Standard Time), with alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's mentor, primary examiner, Dave Nguyen can be reached at (703) 305-2024.

If attempts to reach the primary examiner by telephone are unsuccessful, the examiner's supervisor, John L. LeGuyader, SPE - Art Unit 1635, can be reached at (703) 308-0447.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is (703) 308-7939.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Brian Whiteman
Patent Examiner, Group 1635
4/5/02

DAVET. NGUYEN
PRIMARY EXAMINER